Laparoscopic resection of colon cancer – recommendations

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Based on:

The EAES Clinical Practice Guidelines on Laparoscopic Resection of Colon Cancer 2004, modified in 2006

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1. Pre-operative visual examinations, determining tumour location, size and extent of local progression are recommended (evidence level D).
2. Age is not a contraindication for laparoscopic colon resection (evidence level 2A).
3. Obligatory invasive blood pressure and saturation monitoring is recommended in ASA III-IV patients (evidence level A; dissenting opinion of 9% of panellists); intra-abdominal pressure below 12 mm Hg is also recommended in these patients (evidence level B).
4. Obesity is not an absolute contraindication for laparoscopic treatment. In patients with body mass index (BMI) > 30 kg/m^2 higher risk for complications and conversion is noted (evidence level 2C; dissenting opinion of 7% of panellists).
5. Patients with T4 tumours should undergo open-technique radical resection (power of evidence 5, evidence level D; dissenting opinion of 17% of experts).
6. Intra-abdominal adhesions are not a contraindication for laparoscopic surgery (power of evidence 4).
7. Trocar positioning should depend on the experience and individual preferences of the surgeon (power: 5).
8. A high-definition video camera is highly recommended (power of evidence 5, level D).
9. Correct operative technique reduces risk of port-site metastasis (power: 5).
10. Tattooing of small tumours of the colon is recommended to ease their intra-operative localization. Intra-operative colonoscopy, ultrasound or pre-operative clip placement on the tumour are recommended as useful alternatives (evidence level D).
11. Dissection of the mesocolon from the midline to the sides is preferred during laparoscopy (power: 5, level D).
12. Laparoscopic resection of the colon poses 14% (0-42%) risk of conversion to open procedure. The most frequent cause of conversion is local

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tumour progression. Large tumour size, intra-abdominal adhesions and technical difficulties are other reasons to convert (power: 3A).
13. Laparoscopic colon resection takes more time than open resection (power: 2A).
14. The extent of laparoscopic bowel resection and lymphadenectomy is similar to that achieved with classic technique (power: 2B).
15. No difference was found in occurrence of post-operative complication rates after laparoscopic and classic procedures in colon cancer (power: 2B).
16. Mortality after laparoscopic surgery is comparable to classic open colectomy (power: 2B).
17. Length of hospital stay after laparoscopic colon resection is shorter than after classic resection (power: 1A).
18. Post-operative pain after a laparoscopic procedure is less than after open surgery (power: 2A).
19. Patients after laparoscopic bowel resection require less analgesics when compared to patients after open surgery (power: 1B).
20. Normal gastrointestinal tract function recovery is faster in patients after laparoscopy than after open surgery (power: 2B).
21. Postoperative impairment of respiratory tract function is less in patients operated on with laparoscopic than with classic technique (power: 1B).
22. Survival of patients treated with laparoscopic colon resection is at least as good as that of patients operated on with classic techniques (power: 2A).
23. The percentage of port-site metastases in patients after laparoscopic large bowel tumour resection is less than 1% (power: 2C).
24. The cost of laparoscopic resection of a large bowel tumour exceeds that of open surgery. This is attributable to longer duration of the procedure and more expensive instrumentarium (power: 3B).
25. Body stress response is limited after laparoscopic resection when compared to classic procedures (power: 1B).

The editors' opinion is that laparoscopic surgery of the colon can be performed after intensive, practical training in a centre experienced in this kind of procedure. We believe they should only be performed in centres exceeding 20 procedures a year.

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(Oxford Centre for Evidence-Based Medicine)
Levels of evidence

1A	Systematic review of RCTs (randomized controlled trials) with consistent results from individual (homogeneous) studies.
1B	Randomized controlled trials of good quality.
2A	Systematic review of cohort or case-control studies with consistent results from individual (homogeneous) studies.
2B	Randomized controlled trials of poorer quality or cohort or case-control studies.
2C	Outcome studies, descriptive studies.
3	Cohort or case-control studies of low quality.
4	Expert opinion, generally accepted treatments.

Grades of recommendation

A	Supported by systematic review and/or at least 2 RCTs of good quality. Level of evidence 1A, 1B.
B	Supported by good cohort studies and/or case control studies. Level of evidence 2A, 2B.
C	Supported by case series, cohort studies of low quality and/or 'outcomes' research. Level of evidence 2C, 3.
D	Expert opinion, consensus committee. Level of evidence 4.

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